ABSTRACT

The present invention relates to low a dielectric material essential for a next generation semiconductor with high density and high performance, and more particularly to a low dielectric material that is thermally stable and has good film-forming properties and excellent mechanical properties, a dielectric film comprising the low dielectric material, and a semiconductor device manufactured using the dielectric film.

The present invention provides an organic silicate polymer having a flexible organic bridge unit in the network prepared by the resin composition of the component (a) and the component (b).

a) organosilane of the formula $R^1_mR^2_nSiX_{4-m-n}$ (where each of R^1 and R^2 which may be the same or different, is a non-hydrolysable group; X is a hydrolysable group; and m and n are integers of from 0 to 3 satisfying $0 \leq m+n \leq 3$) and/or a partially hydrolyzed condensate thereof

b) organic bridged silane of the formula $R^3_pY_{3-p}Si\text{-}M\text{-}SiR^4_qZ_{3-q}$ (where each of R^3 and R^4 which may be the same or different, is a non-hydrolysable group; each of Y and Z which may be the same or different, is a hydrolysable group; and p and q are integers of from 0 to 2) and/or a cyclic oligomer with organic bridge unit (Si-M-Si).